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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,891	07/23/2003	Masaomi Ebe	Q76448	6755

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
ROY, SIKHA	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/624,891	EBE, MASAOMI	
	Examiner	Art Unit	
	Sikha Roy	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-7 and 9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-7 and 9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The Amendment, filed on May 30, 2006 has been entered and acknowledged by the Examiner.

Cancellation of claim 8 and addition of new claim 9 have been entered.

Claims 1,4-7 and 9 are pending in the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,465,952 to Itoh et al., and further in view of U.S. Patent 5,683,948 to Tanabe et al.

Regarding claim 1 Itoh discloses (Figs. 1, 2c, 7b column 2 lines 7-24, column 5 lines 9-15) a flat display panel comprising two sheets of substrates 1,3, a seal layer 5 an exhaust hole 3a, a seal plate 17 which directly seals the exhaust hole, wherein the two sheets of substrates are sealed with seal layer 5 via a predetermined gap held there between and the exhaust hole is provided in one of the two sheets of the substrates. Itoh further discloses the exhaust hole is sealed tightly by heat securing (welding by heating device) the seal plate (glass sealing body) 17 directly to a side of the sheet of the substrate on which the exhaust hole id provided.

Itoh does not explicitly disclose the glass seal plate formed of pressed frit.

Tanabe in relevant field of sealing discloses (column 1 lines 25-52) use of crystalline low melting point frit glass used for hermetic sealing. Tanabe discloses the low melting glass has softening point not higher than 500 °C and thermal expansion coefficient from 80x 10^{-7} to 105x10^{-7} /°C. Tanabe discloses this frit glass has the advantage of having thermal coefficient of expansion close to that of panel glass and hence there is no stress developed between the panel and seal and thus leading to excellent hermetic seal.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to substitute frit glass (low melting point crystalline glass) as taught by Tanabe for the seal plate of Itoh for having thermal coefficient of expansion close to that of panel glass substrate so there is no stress developed between the panel and seal and thus leading to excellent hermetic seal.

Regarding claim 5 Itoh discloses (column 5 lines 42-46) the flat display panel has first substrate formed of glass. Tanabe discloses the thermal coefficient of expansion of seal plate is 80 x 10^{-7} to 105x10^{-7} /°C. Glass has thermal coefficient of expansion about 85 x10^{-7}/°C. Itoh and Tanabe discloses the claimed invention except for the limitation of thermal expansion coefficient of seal plate being 0.8-0.65 times the thermal expansion coefficient of substrate. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It would have been obvious to one having ordinary skill in the art at the time the invention was made

to provide the seal plate having thermal expansion coefficient 0.8-0.65 times tha tof the glass substrate for preventing any thermal stress, since optimization of workable ranges is considered within the skill of the art.

Regarding claim 6 Itoh and Tanabe disclose that the substrate is made of glass and the thermal coefficient of expansion of seal plate is $80x\ 10^{-7}$ to $105x10^{-7}$ /°C.

Regarding claim 9 Itoh discloses (Fig. 7b) the seal plate having a diameter larger than the diameter of the exhaust hole 3b. Itoh is silent about the seal plate having shape of a large button. It would have been obvious matter of design choice to have the seal plate in the shape of a large button since the applicant has not disclosed this shape is for any particular reason and it appears that the invention would perform equally well with the seal plate of Itoh and Tanabe.

Regarding claim 9, the Examiner further notes that Itoh and Tanabe disclose the claimed invention except for the limitation of seal plate in the shape of a large button. It has been held that a change in shape is generally recognized as being within the level of ordinary skill in the art. It would have been obvious to one having ordinary skill in the art to select the seal plate in the shape of a large button, since such a modification would have involve a mere change in the shape of a component.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,465,952 to Itoh et al., U.S. Patent 5,683,948 to Tanabe et al. and further in view of U.S. Patent 6,827,623 to Nakatake et al.

Claim 4 differs from Itoh and Tanabe in that Itoh and Tanabe do not exemplify the seal plate formed of glass plate providing high infrared absorbency.

Nakatake in same field of endeavor discloses (column 15 lines 46-57) glass frit formed of a material having high infrared absorption rate so that the seal plate can be melted by infrared, thereby sealing the through hole.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include the sealing plate of Itoh and Tanabe made of glass with high infrared absorbency as suggested by Nakatake for sealing the exhaust hole by melting the seal plate by infrared radiation.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,465,952 to Itoh et al., U.S. Patent 5,683,948 to Tanabe et al. and further in view of U.S. Patent 5,914,531 to Tsunoda et al.

Referring to claim 7 Itoh and Tanabe are silent about the outer surface of the seal plate covered with damp-proofing resin.

Tsunoda in the art of packaging semiconductor devices discloses (column 7 lines 29-49) the circuit board is sealed with resin and thus is greatly protected from moisture. This provides enhanced moisture-proof reliability of the device.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include resin covering the seal plate of Itoh and Tanabe as suggested by Tsunoda for enhancing moisture-proof reliability of the display device.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 08026770 to Asahi Glass Co. discloses sealing composition for plasma display panel comprising crystalline glass with low melting point and thermal coefficient of expansion 65-85 $x10^{-7}$ /°C.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sikha Roy

Sikha Roy
Patent Examiner
Art Unit 2879